REQUEST FOR INFORMATION

TITLE: Illicit Trafficking Radiation Assessment Program+10

THIS IS A REQUEST FOR INFORMATION (RFI) ONLY. This RFI is issued solely for information and planning purposes; it does not constitute a Request for Proposal (RFP) or a promise to issue an RFP or Broad Area Announcement (BAA). Furthermore, those who respond to this RFI should not anticipate feedback with regards to its submission; other than acknowledgment of receipt – IF a request for an acknowledgement is requested by the submitter. This RFI does not commit the Government to contract for any supply or service. DHS DNDO T&E is not at this time seeking proposals. Responders are advised that the U.S. Government will not pay any cost incurred in response to this RFI. All costs associated with responding to this RFI will be solely at the responding party's expense. Not responding to this RFI does not preclude participation in any future RFP or BAA. If a solicitation is released, it will be via the Government wide Port of Entry (GPE) at (http://www.fedbizopps.gov). It is the responsibility of the potential offerors to monitor the website for any information that may pertain to this RFI. The information provided in this RFI is subject to change and is not binding on the Government. All submissions become the property of the Federal Government and will not be returned.

1.0. DESCRIPTION

The Department of Homeland Security (DHS), Domestic Nuclear Detection Office (DNDO), Systems Engineering and Evaluation (SE&E) Directorate is in the process of implementing a joint program, the Illicit Trafficking Radiation Assessment Program+10 (ITRAP+10), with the European Commission, Directorate-General Joint Research Centre (JRC). The purpose of ITRAP+10 is to conduct an evaluation and comparison of the performance of available radiation detection equipment relevant to nuclear security. The results will provide an independent assessment of available radiation detection equipment on the market which will serve as a reference for regulatory and other authorities to identify equipment and or families of equipment to address their particular needs, and potentially help to ensure common standards on an international level. The overall scope of this project is to assist organizations in effectively detecting radioactive materials nationally and crossing borders illegally, whether importations, exportations, or shipments in transit, and by developing recommendations that describe the technical and functional requirements for the selection of radiation detection equipment so that resources are deployed in an efficient way.

The total duration of the ITRAP+10 project is estimated to be two (2) years. The DNDO testing program will mirror the JRC time schedule as close as reasonably possible. For planning purposes, the time schedule is shown in **Table 1**.

DNDO is seeking information on all categories of commercial off-the-shelf (COTS) systems designed for radiological/nuclear monitoring instruments that can be used at and inside the borders by law enforcement agencies.

Tests carried out during this project will focus on the nuclear/radiological performances of the radiation detection instruments. The tests will be based on the technical specifications described in existing American National Standards Institute (ANSI) standards. When applicable, the test may also be conducted against the International Electrotechnical Commission (IEC) standards. **Table 2** lists the different families of equipment to be tested versus their corresponding standards. The number of instruments tested will be limited by the available budget and decided as a function of the number of applications received.

The outcome of the ITRAP+10 project will be a final report on the current technical level of commercially available equipment used in nuclear security. This final report will help define the general performance capabilities of each equipment class. The performance capabilities may be used to develop requirements for future equipment selection activities; however, no selection of specific instruments will be conducted as part of ITRAP+10.

From the associated results, needs for improvements will be identified as necessary, including the user-friendliness of the equipment when used by non-specialist operators.

Participating manufacturers will receive a personalized report, describing the performance of the instruments tested parameter by parameter and/or test by test. Some

comments about how to improve their instruments may be included in the report. The report will include:

- The description of the radiological tests performed: test procedure per family of equipment;
- Detailed individual tests results per model/device and evaluation of their performances;
- Aggregate radiological results per equipment family – only when the number of instruments belonging to this family taking part in ITRAP+10 is higher than two (2).

The results of radiation detection systems included in the ITRAP+10 test campaign will be shared with other Federal, State, Local and Tribal governmental agencies, and international government partners at the discretion of DNDO.

2.0. PURPOSE OF THIS RFI

Through this RFI, DHS DNDO SE&E is seeking technical information responses to determine the capability of the market to provide technologies that may meet the ITRAP+10 goals. If notified of DHS's interest in a vendor's solution, each selected vendor will be asked to:

- Execute a Bailment Agreement with DHS;
- Ship the requested system(s) to a government test site;
- Coordinate with the government test team for vendor-conducted training on the system(s).

DNDO intends to evaluate existing COTS systems that span a wide range of technical and operational capabilities. DNDO aims to obtain a broad overview of the actual possibilities of the nuclear security products in the market.

3.0. GENERAL CONDITIONS

With the goal of achieving the broadest possible overview of nuclear security products in the market, each agency should propose only one (1) unique model of their equivalent instruments for each family of equipment. (Here "equivalent" is understood as the same instrument with only small differences, such as functionalities, size of the crystal, etc.)

When two (2) or more instruments are considered having the same principal technical characteristics (ie. the same instrument commercialized by two [2] or more different companies), only one instrument will be selected to take part in the testing process. In this case, the company having the lower number of instruments already selected in other categories/families of instruments will have the higher priority to be selected.

In the instance of parity based on the number of instruments already selected in other categories/families, the second criterion to assign the priority will be the number of instruments already sold. (Note: Only the number of instruments of the candidate model

will be taken under consideration when comparing the quantity sold.) The higher priority will be given to the company having the most number of instruments already delivered.

Prototypes may be accepted to be tested, but they will be assigned a lower priority compared to commercial instruments of the same family. Prototypes should meet, at a minimum, the requirements of Technical Readiness Level (TRL) 6 as defined in **Table 3**.

A prototype is further defined as:

- Instrument which is in the market for less than six (6) months at the deadline of the application for this declaration of interest to participate in ITRAP+10; and,
- Instrument which has never been sold.

All devices to be tested should be equipped with means allowing automated computer control during a long-term test period, such as false alarm rate. Access to all raw data should be possible.

At the official delivery, the company experts will pre-test the instruments in order to guarantee their operating status. A maximum of two (2) days training to the testing staff will follow the pre-testing period. ITRAP+10 tests will be conducted without company experts. Only testing staff (and/or staff of the partner organizations if necessary) will be present. If an instrument fails, the manufacturer will be notified of the failure immediately in order to provide assistance and repair the unit if possible. If the problem persists beyond 48 hours after identification of the failure, the instrument will be removed from the round of testing.

Two (2) rounds of tests will be organized in order to avoid rejecting instruments due to small functionality failures (ie. battery, minor software errors, etc.). If the instrument cannot be repaired in the time between the two rounds of tests, then the instrument will be removed from testing. A maximum of four (4) weeks will be allocated to repair the instrument before the second round of testing begins.

It is strongly recommended that, if applicable, three (3) units of an instrument of the same model are provided to be tested. Should one of the three (3) have a functionality failure during the test, the process will continue with the other two (2) instruments. Should a second instrument of the same model fail again, the instrument will be rejected from the test process. The intention is to test three (3) units of the instrument to identify performance variation from one unit to the next. DNDO reserves the right to decide the effective implementation of these tests.

(Here “equivalent” is understood as the same instrument with only small differences, such as functionalities, size of the crystal, etc.)

4.0 SUBMISSION DIRECTIONS

Interested parties are requested to respond to this RFI by submitting a white paper describing their capability and systems. Vendors must also submit the completed Module

1 appropriate to their class of instruments. Additionally, each respondent shall identify its business size.

All documentation, white paper, modules, test reports, specification, drawings, etc. shall be submitted in PDF format. The white paper document shall be limited to 10 pages, not including the tables and supporting documentation. The complete package will be submitted via e-mail to DNDOITRAP@dhs.gov. All technical information is due no later than 4:30 PM (Eastern Time) on 14 December 2010. Questions and responses sent to any other email address will not be accepted.

Those who respond to this RFI should not anticipate feedback with regards to their submission other than acknowledgment of receipt – if a request for an acknowledgement is requested by the submitter. DHS reserves the right to review late submissions, but makes no guarantee to the order of, or possibility for, review of late submissions.

Responders are encouraged to avoid use of excessive marketing lexicon, to avoid submission of fancy brochures and other unnecessary sales literature, and to avoid product puffery.

Proprietary information, if any, should be minimized and MUST BE CLEARLY MARKED. To aid DHS, please segregate proprietary information. Please be advised that all submissions become the property of the United States Federal Government, and will not be returned.

Responses to this RFI will be evaluated by Government appointed technical experts drawn from staff within DHS DNDO, other Federal and partner international agencies. The Government may use selected support contractor personnel to assist in the evaluation. These support contractors will be bound by appropriate non-disclosure agreements to protect proprietary and source-selection information. The information compiled in Module 1 is for information only.

List of information and documents to be provided:

1. **Language of documentation:**
   All documentation shall be provided in English.

2. **Technical documentation:**
   The instrument shall be delivered with technical documentation containing the following information:
   - Module 1 duly compiled;
   - Detailed contact information for the manufacturer as listed on the first page of Module 1 – including name, address, telephone, fax, e-mail address and a “hot line” for technical support service;
   - Type of the instrument, purpose, types of radiation to be measured as listed on the first page of Module 1; and
   - Complete description of the instrument with the available technical data, including optimum configuration, range of exposure rates, detection

efficiency, sensitivity, accuracy, false alarm rate (FAR), background influence, calibration data, reference points, modes of operation, alarm initiation algorithms, kinds of alarm, markings, power supply, mechanical, environmental and electrical characteristics, electromagnetic compatibility, reliability, factory test and QA sheet, guarantees and any other relevant information.

3. **Operation and maintenance manuals:**
   The instrument shall be delivered with operating manuals, a short checklist for operating procedure, schematic electrical diagrams, parts list with specifications, a troubleshooting guide, and a list of recommended spare parts. In addition, operation, configuration and administration manuals shall be provided for the software.

All questions and responses for this RFI should be sent via email to DNDOITRAP@dhs.gov. Responses are due no later than 4:30 PM (Eastern Time) on 14 December 2010. Questions and responses sent to any other email address will not be accepted.

Table 1 – Proposed Test schedule		
Test Event #	**Proposed Start Date**	**Proposed End Date**
1	21 March 2011	15 April 2011
2	21 April 2011	18 May 2011
3	23 May 2011	17 June 2011
4	22 June 2011	15 July 2011
5	20 July 2011	16 August 2011
6	22 August 2011	19 September 2011
7	22 September 2011	19 October 2011
8	24 October 2011	18 November 2011
9	22 November 2011	19 December 2011

Table 2 – Family of Equipment vs. Standards		
Equipment Category	**ANSI Standards**	**IEC Standards**
Radiation Portal Monitors	ANSI N42.35	IEC 62244
Spectrometric Radiation Portal Monitors	ANSI N42.38	IEC 62484
Personal Radiation Detectors	ANSI N42.32	IEC 62401
Spectrometric Personal Radiation Detectors	ANSI N42.48	IEC 62618 (draft)
Radioisotope Identifiers	ANSI N42.34	IEC 62327
Gamma Search Detectors	ANSI N42.33	IEC 62533
Neutron Search Detectors	NA	IEC 62534
Portable Radiation Scanners – Backpack Type	ANSI N42.43	NA
Mobile Detection Systems	ANSI N42.43	NA

Table 3 – Technology Readiness Assessment	
Technology Readiness Level	**Description**
1. Basic principles observed and reported.	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Examples might include paper studies of a technology's basic properties.
2. Technology concept and/or application formulated.	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
3. Analytical and experimental critical function and/or characteristic proof of concept.	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4. Component and/or breadboard validation in laboratory environment.	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared to the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
5. Component and/or breadboard validation in relevant environment.	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment. Examples include "high fidelity" laboratory integration of components.
6. System/subsystem model or prototype demonstration in a relevant environment.	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment.
7. System prototype demonstration in an operational environment.	Prototype near, or at, planned operational system. Represents a major step up from TRL 6, requiring demonstration of an actual system prototype in an operational environment such as an aircraft, vehicle, or space. Examples include testing the prototype in a test bed aircraft.
8. Actual system completed and qualified through test and demonstration.	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation of the system in its intended weapon system to determine if it meets design specifications.
9. Actual system proven through successful mission operations.	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation. Examples include using the system under operational mission conditions.